

In re COLLINS, 174 USPQ 333 (CCPA 1972)

In re COLLINS

**(CCPA)
174 USPQ 333**

Decided July 13, 1972

No. 8713

U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

1. Patentability — Anticipation — In general (§ 51.201)

Patentability — Invention — In general (§ 51.501)

Reference which merely describes a thing or a process without telling how to make it or carry it out does not support holding of anticipation unless a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention; such a reference does not support holding of obviousness unless there is some known or obvious way to make the thing or to carry out the process.

2. Board of Appeals — Procedure and practice (§ 19.45)

On petition for reconsideration, applicant submitted affidavit which Board considered on the merits without sending case back to examiner for his comments; under the circumstances, solicitor cannot complain that affidavit was not considered by examiner.

Particular patents—Heat Exchanger

Collins, Continuous Tube Finned Heat Exchanger, claims 1 to 5 of application refused.

Case History and Disposition:

Appeal from Board of Appeals of the Patent Office.

Application for patent of William A. Collins, Serial No. 693,354, filed Dec. 26, 1967; Patent Office Group 345. From decision rejecting claims 1 to 5, applicant appeals. Affirmed.

Attorneys:

PAUL F. SEIBOLD, JOHN A. BLAIR, and HARNESS, DICKEY & PIERCE, all of Detroit, Mich., for appellant.

S. WM. COCHRAN (JERE W. SEARS of counsel) for Commissioner of Patents.

Judge:

Before RICH, Acting Chief Judge, ALMOND, BALDWIN, and LANE, Associate Judges, and MALETZ, Judge, United States Customs Court, sitting by designation.

Opinion Text

Opinion By:

RICH, Acting Chief Judge.

This appeal is from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1-5 in appellant's application serial No. 693,354, filed December 26, 1967, for "Continuous Tube Finned Heat Exchanger." We affirm.

The Subject Matter Claimed

Appellant's invention relates to heat exchangers, such as are used, for example, in refrigeration and air conditioning units, formed from continuous, looped metal tubes and a plurality of fins which encompass the individual tubes completely, giving 360° contact. That is to say, the apertures in the fins are of substantially the size and shape of the tube section. The tubes and fins are in conducting engagement with each other, and, in one form or another, this is a limitation in all of the claims, which are directed to apparatus. Claim 1 (subparagraphing supplied) is illustrative:

1. In a heat exchanger,
 - a continuous metal tube
 - having a single wall thickness throughout its length and
 - of sinuous form providing straight portions joined by oppositely presenting loops of said continuous tube, and
 - metal fins having apertures substantially the shape of the tube section through which

the straight portions extend in conducting engagement therewith.

All remaining claims depend from claim 1. Claims 2 and 3 specify that the tube is made of aluminum, and claim 4 recites that the tube is "made of a material difficult to solder and braze," which reads on aluminum. Claims 2-5 all contain various other limitations not relevant to this appeal.

Appellant's specification states that the claimed heat exchangers may be fabricated by first threading the tube through the openings in a stack of fins, then expanding the tube to engage the apertures of the fins, both in a manner described in certain copending applications referred to in the specification which we are informed have subsequently matured into patents. However, appellant conceded in his brief before the board that "other methods of construction could be employed," and, in his request for reconsideration by the board, he explicitly stated that fabrication by such other methods would result in devices which would infringe the claims he seeks here.

Appellant's Description of the Prior Art

According to appellant's specification,

Heat exchangers * * * have been constructed heretofore by assembling the fins on hairpin type of tube sections the straight portions of which are mechanically expanded to engage spacing collars defining the apertures through the fins. Looped sections of tubing having enlarged ends are placed over the adjacent ends of spaced pairs of hairpin tube sections and brazed thereto to form a continuous tubular path.

Appellant's brief before the board illustrated this prior-art construction with the following drawings: [See page 335, No. 1]

Appellant's specification then continues:

In another construction, the tube is bent to sinuous form with oppositely disposed loops joined by straight portions with the loops on one end extending through *elongated slots* in fins which are engaged by the outer half of the straight portions of the tubes. [Emphasis ours.]

This construction was illustrated in appellant's brief before the board by the following drawings: [See page 335, No. 2]

Appellant's present device differs from the two illustrated above in that, in contrast to the first construction, there are no joints which might leak and, in contrast to the second construction, there is 360° conductive engagement between the tube and the fins instead of 180°.

The References

Table set at this point is not available. See table in hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

Larriva was relied on only for the proposition that it was old to fabricate heat-exchanger

tubes from aluminum, which appellant does not contest.

Collins, the principal reference, is a previous patent to appellant. It is directed to the spacing and arrangement of the straight tube sections of heat exchangers to produce an air flow which increases the efficiency of heat transfer and is not particularly concerned with the manner in which such heat exchangers are made or the degree of contact between tube and fins. However, it contains the following description, which is the basis of the rejection, of the manner in which such heat exchangers could be made:

A sinuous length of tubing 10 has a plurality of straight portions 11 disposed parallel to each other and in two rows 12 and 13. The tube sections of the rows are in staggered relation and are interconnected at the ends by the U-shaped sections 14. *In so far as practicing the present invention is concerned, the tube may be a single length bent back and forth to produce the straight sections and the return end bends*, or straight sections may be employed which have the U-bends applied to both ends or one end when the U bend is provided between two straight sections of tube. In the present arrangement, the U bend 15 is a part of two straight sections, while the U bent ends 16 extend into the ends of the straight tube sections *to be brazed, welded or otherwise secured thereto*. A plurality of fins 17, having flanged apertures 18 [which are circular], are assembled over the straight tube sections, with the fins accurately spaced apart by the length of the flange about the aperture. [Emphasis ours.]

Appellant claims that this is just a description of the same two prior-art constructions described in his present application—one having "hairpin" sections of straight tubing connected by U-shaped looped end sections and one having a continuous, sinuous tubing passing through elongated slots in the fins.

The solicitor additionally relies on a patent to Kramer which was of record below and on what amount to requests for the taking of judicial notice. Neither the disclosure in Kramer nor the prior art of which the solicitor would have us take judicial notice was relied upon by either the examiner or the board, and we will not consider it now.

The Rejection

The examiner's rejection is based on two slightly different theories. First, he argued that the statement in Collins that "the tube may be a single length bent back and forth to

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produce the straight sections and the return bends"

* * * can be considered to disclose the possibility of sinuous tube 10 being "a continuous tube having a single wall thickness throughout its length" [as required by appellant's claim] * * *

Second, stating that "it is an old expedient to make a weld the same thickness as the tubes it joins together," he argued that it would have been obvious from Collins to have produced appellant's presently claimed devices *by welding*.

The board essentially adopted both of the examiner's rationales, although it somewhat extended the second. As to the first, it stated in its initial opinion that "The absence of a disclosure in * * * [Collins] of *how to make* a single continuous length tube does not render it improper as a reference for such article." (Emphasis ours.) As to the second, it stated that it "agree[d] with the examiner that Collins heat exchange unit [here claimed] could be fabricated by using U-shaped end sections which are butt welded to straight sections" and that, moreover, "with present day metal working techniques, it is difficult to say by how many ways such structure may be produced."

Appellant requested reconsideration of the board's decision, submitting with his request an affidavit by one Sweedyk, the chief engineer of appellant's assignee, in which the affiant stated that he had never seen a device such as those claimed by appellant produced by butt welding, that he did not believe that copper tubing of the standard size used in condensers¹ could be butt welded "because of the thin wall which would burn off rather than soften and weld," that "it would be entirely impractical" to butt weld copper tubing of the type used in condensers, even if it could be done, because "such welds reduce the inside diameter of the tube and produces [sic] restrictions at the welds which cannot be removed by drilling or other operations," that the ends of the hairpin elements and the ends of the reverse bends would each have to be extended at least one and one-half inches in order to get the two sections to be welded into the machine in which the butt welding was to be performed,² and that "it would be impossible to perform such welds on a machine now known in the art" because of

the proximity of the straight lengths one to another "due to the bending of the end caps and hairpin elements on a three-quarter or one inch radius * * *" The board's opinion on reconsideration considered the affidavit, but found it unpersuasive. The board said:

We are still of the opinion that buttwelding the reverse bends of Collin's device to the ends of his hairpin sections is *unpatentable*. Appellant's arguments as well as the Sweedyk affidavit discuss the different joints as to their practical application. Such consideration is not normally a criterion in determining patentability. Although a butt joint would not be as durable and as practical as a lap joint, it is nevertheless an obvious possibility. [Emphasis ours.]

We note that we are not here concerned with the *patentability* of a butt welded construction, and the board's reasoning in this respect is unclear, but what the board apparently meant by this was (1) that it thought that it would have been obvious at the relevant time³ how to manufacture heat exchangers such as appellant claims by butt welding the reverse bends and the hairpin sections of prior art devices such as appellant asserts were in fact fabricated by *lap* welding and (2) that it concluded that *the heat exchangers* claimed by appellant (not the *process* of manufacturing such heat exchangers by butt welding) were therefore unpatentable.

OPINION

The brief excerpt from Collins on which the Office relies in this case is, at the least, ambiguous. Most of the portion we have quoted concerns the lap welding technique illustrated *supra* as the first of the prior art constructions discussed in the present specification, and the drawings are of that construction.⁴ The Office's reliance is essentially on only half of one sentence, reading "In so far as practicing the present invention is concerned, the tube may be a single length bent back and forth to produce the straight sections and the return end bends * * *" This sentence fragment can be read on both the second prior art construction described in much more detail in

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the present application—the one with elongated slots in the fins—and the construction described *and claimed* in the present application. This is so because it omits all mention of the shape of the apertures in the fins through which the tube is passed. Nevertheless, we agree with the examiner that the quoted language *suggests* appellant's presently claimed construction, precisely *because* it omits mention of the need for elongated slot apertures which give only 180° contact instead of the snugly engaging circular apertures which provide 360° contact between fin and tube.

However, the Collins reference does not indicate how heat exchangers made from a single length of tube, bent back and forth, and having 360° contact with the fins can be fabricated, and we think this is a matter of considerably more moment than the board apparently did.

[1] It is well settled, at least in this court, that a reference which merely *describes* a thing or a process without telling how to make it or carry it out does not support a holding of anticipation unless "a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention," *In re LeGrice*, 49 CCPA 1124, 1134, 301 F.2d 929, 936, 133 USPQ 365, 372 (1962) (emphasis omitted), or

does not support a holding of obviousness unless "there is some known or obvious way" to make the thing or to carry out the process. *In re Hoeksema*, 55 CCPA 1493, 1498, 399 F.2d 269, 273, 158 USPQ 596, 600 (1968). Thus, we think the lack of a teaching in Collins of how to make the presently claimed heat exchangers vitiates the rejection unless there was some known or obvious way to make them.

As previously indicated, the board stated its belief that, "with present day metal working techniques," there were many ways to produce structures such as appellant claims. However, it specifically referred only to butt welding, and we accordingly give no weight to its unsupported assertion that other techniques might have been known or obvious at the relevant time. *In re Fisher*, 58 CCPA 1192, 441 F.2d 664, 169 USPQ 602 (1971).

This leaves us with (1) the board's suggestion that heat exchangers such as appellant claims obviously could have been produced by butt welding⁵ and (2) the affidavit submitted by appellant in rebuttal thereto. The solicitor argues that.

* * * whatever else might be said of the Sweedyk affidavit, it can hardly be viewed as shifting any "burden of going forward with proofs." In *In re Hoeksema* * *, evidently cited by appellant for that proposition (Br-14), the examiner did have an opportunity to comment on the Wiley affidavit (see earlier opinion at 54 CCPA 1621, 154 USPQ at 171). Here, the examiner had no opportunity to comment upon the Sweedyk affidavit, much less advance any proofs in reply thereto.

[2] We disagree. The board chose to consider the Sweedyk affidavit itself, on the merits, without sending the case back to the examiner for his comments on it. Under the circumstances, we do not think that the solicitor can complain that the affidavit was not considered by the examiner, and we think that, procedurally, the Sweedyk affidavit filed here is on just as firm a foundation as the Wiley affidavit filed in Hoeksema. Compare *In re Moore*, 58 CCPA 1340, 1344-45, 444 F.2d 572, 574-75, 170 USPQ 260, 263 (1971).

However, we do agree with the solicitor that Sweedyk's affidavit fails to establish that there was no known or obvious way to make heat exchangers falling within the scope of appellant's claims. In the first place, as the solicitor points out, "Sweedyk's discussion of dimensions is irrelevant, the claims reciting none," and, in the second, the claims are not limited to heat exchangers used in the refrigeration field, as appellant's brief assumes they are. Moreover, the most that can be said for Sweedyk's affidavit is that it establishes the impracticability of butt welding thin-walled *copper* condenser tubing—but appellant's claims are not limited to condensers made from thin-walled copper tubing. Indeed, claims 2 and 3 recite that the heat-exchanger tubes are made of aluminum, and the other claims do not exclude aluminum tubing. As we said last year in *In re Tiffin*, 58 CCPA 1420, 1421, 448 F.2d 791, 792, 171 USPQ 294 (1971):

* * * it is the view of this court that objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support. * * *[Citation of cases omitted.] Here, appellants' claims * * * are too broad in the sense of 35 U.S.C. 103 in that they are inclusive of subject matter which is *prima facie* obvious and concerning which appellants have *not* rebutted the Patent Office's *prima facie* case.

For the foregoing reasons, the rejection of claims 1-5 is *affirmed*.

Footnotes

Footnote 1. The affiant apparently uses the word "condensers" to refer to a subgenus of the genus "heat exchangers."

Footnote 2. The point of this averment is apparently that the exterior of the tube beyond the fins consumes space without commensurate contribution to heat exchange.

Footnote 3. At the time the invention was made or more than one year prior to the applicant's filing date. 35 U.S.C. 102(a), (b), 103, and *In re Foster*, 52 CCPA 1808, 343 F.2d 980, 145 USPQ 166 (1965) cert. den., 383 U.S. 966, 149 USPQ 906 (1966).

Footnote 4. The solicitor stresses that claim 2 in the Collins patent recites "a plurality of fins extending between and around each of said tubes in firm mechanical contact therewith * * *" Claim 2, however, might very well be taken by those skilled in the art, at least prior to appellant's present invention, as directed to a heat exchanger constructed in the first manner discussed *supra*.

Footnote 5. Curiously, both appellant and the solicitor seem to have assumed the equivalency of the examiner's assertion that such heat exchangers could have been produced by *welding* and the board's assertion that such heat exchangers could have been produced by *butt welding*

- End of Case -